技术及应用

# ITER校正场磁体馈线结构分析

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**摘要** 基于ANSYS对ITER校正场磁体馈线的结构进行了分析。根据馈线结构特点，对有限元模型进行了简化。通过电磁分析，获取了超导母线的电磁力，研究了电磁力与超导母线支撑间距的关系，并根据结果提出了推荐的支撑间距。在进行馈线模型结构分析时，电磁力按支反力的形式施加，并施加不同的载荷工况，获取了不同工况下馈线的应力及变形数据。分析结果显示馈线结构设计是合适的，满足设计应力准则要求。

关键词 馈线 超导母线 电磁分析 结构分析

分类号

# Mechanical Analysis for ITER Correction Coil Feeder

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**Abstract** A mechanical analysis based on ANSYS was carried out for ITER correction coil feeder. According to the feeder structure character, the finite element model was simplified. The Lorentz force on the Busbar was obtained from magnetic analysis, and the support distance of Busbar was ascertained by the EM force. For structural analysis, the EM force was applied as reaction force, different load cases were applied on structural analysis model, and the stress and displacement in different load cases were obtained accordingly. The simulation results indicate that the structural design of feeder is feasible and can fulfill the stress design criterion of feeder.

**Key words** feeder superconducting Busbar magnetic analysis mechanical analysis

通讯作者

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